

## Review Essay Series

# THE ART OF WATER AND THE ART OF LIVING

by James E. Sherow

### EDITORS' INTRODUCTION

Introducing an essay on water without resorting to a truism, such as water is the life's blood of civilization, is difficult. We all know this to be fact, but the interesting reality is that Americans have rarely treated this vital fluid as the source of life that it truly is. Except when it is in short supply, we seldom give it much thought.

In Kansas and the West, however, the dearth of water is a constant. And, observed historian Walter Prescott Webb in his 1931 classic *The Great Plains*, the "search for water" has been a "continuous and persistent" theme of Plains history. So too the humor used to confront the shortage: "This," said the newcomer to the Plains, 'would be a fine country if we just had water.' 'Yes,' answered the man whose wagon tongue pointed east, 'so would hell.'"

William G. Clugston once posed a critical question for Kansans. He had taken a hard look at mainstream Kansas culture and asked if in mastering the art of "making a living" had Kansans ignored "the art of living?" Farmers had learned how to turn mixed-grass prairies into wheat fields for feeding a hungry nation and world. Engineers had dammed clear flowing streams and created vast reservoirs of water for flood control and urban growth. Social and economic reformers extolled a commanding hand over the land as they held sway over the moral behavior of ordinary Kansans. In zealous self-righteousness, they prohibited smoking, drinking, dancing, card playing, and gambling, and in so doing cast long, lasting shadows over the character of the state. These reforms were intended to guide Kansans toward sober pursuits in the realms of commerce. As a re-



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*Local residents pause for this photographic moment on the Arkansas River bridge at Garden City.*

For Webb, water was “the crux of the whole problem of conquering the Great Plains.” But as some have noted for many years and as new western and environmental historians such as James E. Sherow have demonstrated for several decades, the state’s water “problems” go far beyond shortage. They encompass many issues that do not lend themselves to humorous relief.

The following essay is the third in our still new review essay series. It critically examines the historiography of water in the region and offers some provocative observations for the present and future. A native Kansan and professor of history at Kansas State University, Sherow suggests that our past “domination of water” may contain “hidden consequences for the future.” With regard to Kansans’ relationship to water, he observes that we “have mastered the art of making a living as opposed to mastering the art of living. . . . people have given more heed to the economic development of water than they have to the health and beauty of aquifers, creeks, rivers, and wetlands.” And we cannot live without healthy water.

Sherow’s essay fulfills the series’ objective in fine style. As he wrote in the introduction to a special 1996 issue of *Kansas History* and reaffirms in the following article,

Accomplishments and environmental problems in water development are historical. As Kansans we

sult, making money overshadowed the creation of poetry, painting, music, literature—the celebration of life itself. Kansans’ success in the art of “making a living,” Clugston proclaimed, averted the “art of living.”<sup>1</sup>

Admittedly, Clugston’s writing lacks subtlety, and today his outlook appears as little more than the ranting of an unrepentant curmudgeon. Still, a matter-of-fact reading of Kansas water history shows there is fire in Clugston’s smoke. Some early critics have seen western civilization’s goal to “dominate nature” through science and technology leading inextricably toward the destruction of the wild across the planet and of the earth’s ecosystematic relationships. Moreover, this domination of nature by the few who wield the power of technology and economics subjugates the lives of the vast majority.<sup>2</sup> Perhaps Kansans’ domination of water contained hidden consequences for the future.

Clugston was not alone among Kansas writers. William Allen White, Allen Nevins, Karl Menninger, Kenneth Davis, and Milton Eisenhower have all, in one form or another, written commentaries resembling Clugston’s. “The Kansas prairies,” White once wrote, “are as mysterious and moody as the sea in their loveliness, yet we graze them and plow them and mark them with roads and do not see them.”<sup>3</sup> White could have easily evoked the same sentiment had he inserted rivers, wetlands, and aquifers for prairies, and dams and ditches for plows and roads.

The prevailing theme found in all these writers’ works is not mere academic musings intended to throw hard-working Kansans off the tracks of progress and prosperity. An analysis of Kansas water history certainly bears witness to their themes as generalized in Clugston’s assertion: Kansans have mastered the art of making a living as opposed to mastering the art of living. The career of George Knapp, arguably the most important person to have shaped contemporary Kansans’ relationship to water, exemplifies this theme. His life corroborates the main lesson found in the water history of the state: people have given more heed to the economic development of water than they have to the health and beauty of aquifers, creeks, rivers, and wetlands.<sup>4</sup>

1. W. G. Clugston, “Kansas the Essence of Typical America,” *Current History* 25 (October 1926): 14–20.

2. One of the best comprehensive studies of the “domination of nature” thesis is William Leiss, *The Domination of Nature* (New York: George Braziller, 1972). Some of the more notable authors of the critical school are Max Horkheimer, Theodore Adorno, Herbert Marcuse, and Jurgen Habermas. Karl Wittfogel was at one time associated with the critical school, and his *Oriental Despotism: A Comparative Study of Total Power* (New Haven: Yale University Press, 1957), has shaped the thinking of a great many American water historians. The development of irrigation, or hydraulic societies, Wittfogel argued, left a legacy of despotic governments throughout the Asiatic world. A notable application of Wittfogel’s thinking to American history is Donald Worster, *Rivers of Empire: Water, Aridity and the Growth of the American West* (New York: Pantheon Books, 1985).

3. William Allen White, “Kansas: A Puritan Survival,” *Nation* 114 (April 19, 1922): 462; Kenneth S. Davis, “Portrait of a Changing Kansas,” *Kansas Historical Quarterly* 42 (Spring 1976): 24–47; Milton Eisenhower, “The Strength of Kansas,” *Kansas Magazine* (1949): 9–15; Karl Menninger, “Bleeding Kansas,” *ibid.* (1939): 3–6; Allen Nevins, *Kansas and the Stream of American Destiny* (Lawrence: University of Kansas Press, 1954). These essays can be found in Thomas Averill, ed., *What Kansas Means to Me: Twentieth Century Writers on the Sunflower State* (Lawrence: University Press of Kansas, 1990).

4. The only secondary literature dealing exclusively with George Knapp’s life is R. V. Smrha, “George Knapp and the Kansas Water Rights Act,” *Kansas Water News* 9 (April 1966): 3–4. His career is somewhat traceable through other primary source materials, such as reports published by the Kansas State Board of Agricultural, state and federal court records, in his annual reports to the Asso-

George Knapp is not a household name by any means, yet he played *the* pivotal role in how Kansans developed water for economic purposes, negotiated water conflicts with other states, and created laws to regulate the uses of water within the state. The utilitarian side of the American conservation movement shaped much of Knapp's thinking, and historians have paid considerable attention to this social and intellectual trend. Samuel Hays, Carroll Pursell, Jeffrey Stine, Jamie W. Moore and Dorothy P. Moore, and Donald Jackson have all stressed how engineers adhered to the guiding concepts of efficiency, conservation, corporate- or business-like government, scientific methodology and objectivity, and social engineering. Knapp strove to maintain these principles throughout his lifetime.<sup>5</sup>

The American conservation movement, itself, was rooted in the mechanistic tradition. This worldview, as Thomas Kuhn and Carolyn Merchant argue, started coming into focus in western Europe around 1600. It overshadowed "organicism," an earlier tradition that imparted life and spirit to all things. Merchant, in particular, has described organicism as a shared relationship among people and other animated beings. For example, miners performed rituals to seek permission from the earth before digging into her living bowels. Europeans conversed with trees and animals, and entered into all kinds of mutual exchanges with these animate beings. The mechanistic tradition, founded in the discoveries of the Enlightenment, counted among its initial advocates Rene Descartes, Galileo Galilei, Francis Bacon, and Sir Isaac Newton. In contrast to organicism, Merchant contends, they considered all matter devoid of sentient life. Humans, and humans alone, stood apart from all else in that they possessed God-given souls, and, being so imbued, God had empowered and commanded them to understand and control the earth.<sup>6</sup>

For mechanistic thinkers such as Descartes, the earth was nothing more than a machine. Through experimental methods, the operations of the machine could be understood, then controlled and placed into the service of people, who stood apart from this machine world because of their God-given souls. Merchant quotes Francis Bacon, who starkly summarized this view in one cogent sentence: "I am come in very truth leading to you nature with all her children to bind her

must realize that our difficulties did not suddenly appear but are the result of forces set loose in the past. People before us had visions and plans, and we have inherited the results, both good and bad. Moreover, as we deal with contemporary realities of water development we set the stage for our posterity. It seems reasonable to propose that we need to understand the history of water in this state if we are ever to deal effectively with the forces of the past and set into motion nondestructive forces to shape the future.

Kansas scholarship has been moving in important new directions, and to give us all a better understanding of these profoundly important developments, we have enlisted scholars such as Professor Sherow to analyze the nature and evolution of Kansas history over the course of the past 150 years or more. The series introduction (Autumn 2001) charted the course, and Gunja Sen-Gupta's "Bleeding Kansas" essay (Winter 2001/2002) started us down a historiographical river that should lead to a greater appreciation for and understanding of Kansas history and scholarship.

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ciation of Western State Engineers, in letters from his office, and his letters in other manuscript collections, such as the M. C. Hinderlider Papers, Colorado Historical Society, Denver. It is hoped that there are still extant papers and collections that will shed further light upon this important man's career as Knapp deserves a full-fledged biography.

5. Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (Cambridge: Harvard University Press, 1959); Jeffrey K. Stine, "Regulating Wetlands in the 1970s: U.S. Army Corps of Engineers and the Environmental Organizations," *Journal of Forest History* 27 (April 1983): 60-75; Carroll Pursell, "Conservation, Environmentalism, and the Engineers: The Progressive Era and the Recent Past," in *Environmental History: Critical Issues in Comparative Perspective*, ed. Kendall E. Bailes (Lanham, Md.: University Press of America, 1985); Jamie W. Moore and Dorothy P. Moore, *The Army Corps of Engineers and the Evolution of Federal Flood Plain Management Policy* (Boulder: University Press of Colorado, 1989); Donald C. Jackson, "Engineering in the Progressive Era: A New Look at Frederick Haynes Newell and the Reclamation Service," *Technology and Culture* 34 (July 1993): 539-74.

6. Carolyn Merchant, *The Death of Nature: Women, Ecology and the Scientific Revolution* (New York: Harper and Row, 1983), and Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962), are two of the best depictions of this intellectual paradigm shift in western Europe.



*George Knapp, who entered the "water scene" in Kansas in 1914, just as the "irrigation crusade" had taken hold, played the pivotal role in how Kansans developed water for economic purposes.*

to your service and make her your slave."<sup>7</sup> Bacon and Descartes had tossed aside any reciprocal relationships embedded in organicism and embraced the ethos of domination.

The ideology of mechanism flourished in the centuries after 1600 and found a warm welcome in the thinking of Knapp's profession. For example, Michael Creed Hinderlinder, the state engineer of Colorado and a professional colleague of George Knapp's, rephrased Bacon's thinking in 1931: "Controlled and guided by the will of man, [water] becomes his never tiring slave, turning the wheels of industry, energizing the levers of force, and bearing the burdens of commerce."<sup>8</sup> Substitute nature for water in Hinderlinder's statement, and Bacon emerges.

For people such as Knapp, the power to dominate nature did not automatically bestow humans with the right to destroy it. Rather, they wielded it to control rivers and rangelands in an effort to benefit human aspirations and needs without simultaneously degrading the resources that sustained American civilization. With their scientific pedigrees, they saw themselves singularly equipped to guide human progress through the development of water.

Knapp came into the world when the American conservation movement was gaining a good head of steam. Within a few years of his birth in 1884, his family moved to Iowa where he attended public schools. Knapp chose engineering as a career, the most influential profession in the conservation movement.<sup>9</sup> Similar to other engineers, he acquired a knack for learning the practical, and he developed his initial skills at Highland Park College, in Des Moines. He studied there for three and a half years before journeying to Manhattan, Kansas, where he accepted an instructor position in the Division of Engineering at Kansas State Agricultural College in February 1913. At the same time, he continued his own studies and completed his bachelor of science degree in the spring of 1914.

Upon graduation, Knapp accepted a position with the Office of Irrigation Investigations under the U.S. Department of Agriculture in Garden City, Kansas. Knapp arrived on the scene just in time to witness first-hand, and participate in, the forces transforming the practices of irrigated agriculture in the region. The "irrigation crusade" had taken hold; a growing social ferment advocated revising the water laws governing the region; nascent pump irrigation systems dotted the valley; sugar beets had become an established high-value cash crop; and the federal government had become an important player in quelling the interstate tensions between Colorado and Kansas irrigators over the control of the Arkansas River flows.

Historians such as Norris Hundley, Lawrence Lee, Donald Pisani, and Donald Worster have given considerable attention to the "irrigation crusade" as it affected the development of water throughout the West, and many Kansans had prominent roles in this movement. The most important person at the national level was William Smythe, who believed in the power of irrigation to create cooperative capitalistic enterprises that, by employing the natural laws of God, would compel arid lands to bear fruit. Moreover, he had an unbounded

7. Merchant, *The Death of Nature*, 170.

8. James Sherow, "The Chimerical Vision: Michael Creed Hinderlinder and Progressive Engineering in Colorado," *Colorado Heritage*, Essays 9 (1989): 37–59.

9. Merchant, *The Death of Nature*; Kuhn, *The Structure of Scientific Revolutions*.

faith that material and moral progress would flow from this conquest of water.<sup>10</sup> In Kansas, Joseph Bristow, the progressive newspaper editor from Salina; J. W. Gregory, booster and newspaper editor from Garden City; and Charles (Buffalo) J. Jones, an irrigation promoter and developer in the Garden City area, led the irrigation crusade.<sup>11</sup> All of them, as their biographers have shown, hoped that irrigation would result in economic and social gains for themselves and their constituencies, but as historian Anne Marvin has noted in her work about Jones, their efforts more often than not found rest in a "graveyard of hopes."<sup>12</sup>

Knapp also came to realize how water developments in his portion of the state were placing irrigators in contention with those who resided in the eastern half of Kansas. Some of these differences arose because the principle of water law in the state, the riparian doctrine, could not consistently be applied in both halves without hindering economic development in the west. These divergent needs, as Robert Irvine illustrates in his history of Kansas water law, arose as a result of regional variances in geography and climate as they related to economic and agricultural development.<sup>13</sup>



*By irrigating the arid regions of the state, agricultural products rapidly became high-value cash crops. In this early twentieth-century photo, wagonloads of sugar beets block the streets of Garden City.*

10. An excellent starting place for gaining an introduction to the historiography of western water history is Donald J. Pisani, "Deep and Troubled Waters: A New Field of Western History?" *New Mexico Historical Review* 63 (October 1988): 311–31; see also Norris Hundley Jr., *The Great Thirst: Californians and Water, 1770s–1990s* (Berkeley: University of California Press, 1992); Pisani, *To Reclaim a Divided West: Water, Law, and Public Policy 1848–1902* (Albuquerque: University of New Mexico Press, 1992); Worster, *Rivers of Empire*. For an introduction to William Smythe, see Worster, *The Conquest of Arid America*, introduction by Lawrence B. Lee (1969; reprint, Seattle: Americana Library, 1970). James Sherow, *Watering the Valley: Development along the High Plains Arkansas River, 1870–1950* (Lawrence: University Press of Kansas, 1990), treats the history of irrigation and reclamation in western Kansas and eastern Colorado. Additional historiographical essays are Thomas Clay Arnold, "Theory, History and the Western Waterscape: The Market Culture Thesis," *Journal of the Southwest* 38 (1996): 215–40; Gail E. Evans, "A High Tide of History: Values, Conflicts, and Transformations in Water History," *Journal of Policy History* 6 (1994): 244–58.

11. The best details of Bristow's work in promoting irrigation in Kansas are A. Bower Sageser, "Editor Bristow and the Great Plains Irrigation Revival of the 1890's," *Journal of the West* 3 (January 1964): 75–89; Sageser, *Joseph L. Bristow: Kansas Progressive* (Lawrence: University of Kansas Press, 1968), especially chapter two, "The Editor and the Irrigation Crusade," 15–26. The irrigation crusade in and around Garden City and J. W. Gregory are extensively covered in Anne M. Marvin, "The Fertile Domain: Irrigation as Adaptation in the Garden City, Kansas Area, 1880–1910" (Ph.D. diss., University of Kansas, 1986); James E. Tomayko, "The Ditch Irrigation Boom in Southwest Kansas: Changing the Environment," *Journal of the West* 22 (April 1983), 20–25; Sherow, *Watering the Valley*, especially chapter 5, "Irrigation in Southwestern Kansas, 1870–1950." In the 1890s and early 1900s Gregory and John E. Frost both covered the crusade in *Kansas for the Irrigation Age*, William Smythe's nationally distributed publication promoting his cause. These articles offer a wonderful window to those heady times when irrigation promised a panacea for the nation's social and economic ills. For additional discussion on Jones, see Marvin, "The Fertile Domain"; Sherow, *Watering the Valley*; Paul F. Long, "Buffalo Jones: City Builder," *Journal of the West* 28 (October 1989): 87–92.

12. Anne M. Marvin, "A Grave-Yard of Hopes: Irrigation and Boosterism in Southwest Kansas, 1880–1890," *Kansas History: A Journal of the Central Plains* 19 (Spring 1996): 36–51.

13. Robert Irvine, "Putting The Water to Work: A History, Kansas Water Law and the Environment" (Ph.D. diss., Kansas State University, 1997); Irvine, "The Waterscape and the Law: Adopting Prior Appropriation in Kansas," *Kansas History: A Journal of the Central Plains* 19 (Spring 1996): 22–35.



Residents of the eastern part of Kansas largely regarded rivers and streams for their potential in aiding transportation or as sources of water to power grain mills and industrial factories. This 1900 photograph is of Fogarty's Mill (Star Roller Mill) on the Smoky Hill River near Junction City.

Using water courses for navigation, potable sources, economic resources, sewage disposal, and power generation flourished within the riparian doctrine of water rights. Many scholars, such as Irvine, Wells A. Hutchins, and Arno Windscheffel, have discussed how the riparian doctrine was adapted from English Common Law and became the standard means for water regulation throughout the Midwest. During the Wyandotte Constitutional Convention, delegates incorporated a midwestern legal tradition into the state constitution as they modeled their work largely on Ohio. The riparian doctrine had two notable components to it. First, the landowners of any stream bank had the quantity of water flowing past their property protected from any diminishment by upstream uses. Second, the water quality of the currents passing their holdings was supposed to be unaffected by anyone employing water above.<sup>14</sup>

Prior to the initiation of irrigation around Dodge City and Garden City in the 1880s, people in the eastern portion of the state largely regarded streams and springs in terms of their potential for aiding transportation or as possible sources of water power for mills or factories. For example, Rex Buchanan, Robert Sawin, and Wayne Lebash explain the importance of springs and rivers for the draft animals that lugged trade wagons and conestoga schooners during the territorial period and early years of statehood.<sup>15</sup> David Clapsaddle's work illustrates how water considerations shaped merchant and army freighters' decisions in selecting certain segments of the Santa Fe Trail.<sup>16</sup> Phil Chappell and Edgar Langsdorf long ago chronicled the comings and goings of the shallow-bottomed steamboats in the Missouri and Kansas Rivers, but all other streams lacked depths to float the loads of even the lightest of these packets.<sup>17</sup> Occasionally, as other scholars have shown, benighted gurus would wax elo-

14. A clear discourse on riparian water law doctrine in the state is Wells A. Hutchins, *The Kansas Law of Water Rights* (Topeka: Division of Water Resources and Kansas State Water Resources Board, 1957). Two other valuable works that treat Kansas water law, in addition to Robert Irvine's dissertation, are Arno Windscheffel, "Water Law in Kansas," *Journal of the Bar Association of the State of Kansas* 23 (November 1954): 171–6; Windscheffel, "Kansas Water Rights—Another Chapter," *ibid.* 26 (November 1957): 185–9.

15. Rex Buchanan, Robert Sawin, and Wayne Lebash, "Water of the Most Excellent Kind: Historic Springs in Kansas," *Kansas History: A Journal of the Central Plains* 23 (Autumn 2000): 128–41.

16. David K. Clapsaddle, "The Wet and Dry Routes of the Santa Fe Trail," *Kansas History: A Journal of the Central Plains* 15 (Summer 1992): 98–115; Clapsaddle, "The Dry Route Revisited," *Overland Journal* 17 (Summer 1999), 2–8.

17. Phil E. Chappell, "A History of the Missouri River," *Kansas Historical Collections, 1905–1906* 9 (1906): 237–136; Edgar Langsdorf, "A Review of Early Navigation on the Kansas River," *Kansas Historical Quarterly* 18 (May 1950): 140–45; Langsdorf, "More About Kansas River Steamboats: The First Kansas-Built River Steamer," *ibid.* 18 (November 1950): 405–7. The standard for detailing steamboat river traffic throughout the United States is Frederick Way Jr., comp., *Way's Pocket Directory, 1848–1883* (Athens: Ohio University Press, 1983).

quent on how the Arkansas River could be profitably navigated by commercial river traffic while a few reckless captains all too often grounded their crafts in vain attempts to ply the river.<sup>18</sup>

More than a means for aiding transportation, streams also had held the potential for water power. Federal territorial surveyors took careful notes of potential sites for grain mills and industrial factories, and Leslie Fitz provides an overview of the initiation of grain milling in Kansas.<sup>19</sup> Brian Black provides a detailed discussion of Justin D. Bowersock's efforts to create an industrial and power production plant for Lawrence, Kansas. He invested thousands of his own dollars, and those of many others, in a drive to dominate the flows of the Kaw River. His ability to render river flow into profits proved elusive as ice flows and driftwood often wrecked his enterprise and flooded him with debt. Remarkably, later owners of the dam managed to keep it operational. It produces modest amounts of electrical power to this day, even though other sources of power became far more economical for consumers in Lawrence.<sup>20</sup>

Rivers in the eastern portion of the state also served two other important functions: as food sources and waste systems. William Sharp and Peggy Sullivan have described the colorful Lewis Dyke, one of the first fish and game commissioners in Kansas, who experimented with stocking the Kansas River with salmon in an unsuccessful effort to enhance the food potential of the river.<sup>21</sup> William A. Dobak provides a more gruesome portrait of rivers as open sewer systems. In 1887, as Dobak relates, Captain George Pond frequently observed dead animals floating down the Kaw River. He harbored additional concerns about the runoff wastes from "innumerable pig" farms, the sewage from an "immense agricultural district," and all of this refuse flowing past the intake pipe for the water system of Fort Riley, located a mere three miles downstream from the sewage outlet for Junction City.<sup>22</sup>

In one case, related by Robert Angelo, streams provided a resource that could be mined. A button industry based upon the harvesting of fresh water mussels existed throughout the Neosho River valley. Of course, this industry could exist only if stream flows remained constant and the quality of water stayed pure. Again, the riparian doctrine promised the best legal protection for industries such as this.<sup>23</sup>

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profitably navigated  
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in vain attempts  
to ply the river.*

18. For the history of attempts and partial successes on the Arkansas, see Craig H. Miner, *Wichita: The Early Years, 1865–1880* (Lincoln: University of Nebraska Press, 1982); James H. Thomas and Carl N. Tyson, "Navigation on the Arkansas River, 1719–1886," *Kansas History: A Journal of the Central Plains* 2 (Summer 1979): 135–41.

19. Leslie A. Fitz, "The Development of the Milling Industry in Kansas," *Kansas Historical Collections*, 1911–1912 12 (1912): 53–9. See also Norman Saul, "Mill Town Kansas in the Age of Turkey Red," *Kansas History: A Journal of the Central Plains* 23 (Spring/Summer 2000): 26–41.

20. Brian Black, "Mastering the Kaw: The Bowersock Dam and the Development of Lawrence Industry," *Kansas History: A Journal of the Central Plains* 16 (Winter 1993–1994): 262–75.

21. William Sharp and Peggy Sullivan, *The Dashing Kansan: Lewis Lindsay Dyche, The Amazing Adventures of a Nineteenth-Century Naturalist and Explorer* (Shawnee Mission, Kans.: Harrow Books in Association with the Museum of Natural History, University of Kansas, 1990).

22. William Dobak, "'One of the Nastiest Rivers that I Know Of': Municipal and Rural Sanitation in Nineteenth-Century Kansas," *Kansas History: A Journal of the Central Plains* 19 (Spring 1996): 55.

23. Robert T. Angelo, "Commercial Harvesting of Freshwater Mussels in Kansas" (paper presented at Kansas Department of Wildlife and Parks Commission meeting, Lawrence, Kans., October 8, 1990).



*Justice Brewer  
weighed the eco-  
nomic returns of  
water development  
in both states and  
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counties prospering  
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in Colorado.*

When Knapp began his work in the Garden City area, three Kansas Supreme Court cases had already established the riparian doctrine for guiding Kansas water development. The works of Irvine, Hutchins, and Windscheffel all attest to the importance of *Shamleffer v Council Grove Peerless Milling Co.* (1877), *City of Emporia v Soden* (1881), and *Clark v Allaman* (1905). Especially notable was the role of Justice David Brewer of the Kansas Supreme Court, who wrote the opinions for the court's decisions in the first two cases.<sup>24</sup> In these three state supreme court cases, the justices took a keen interest in protecting the economic potential of water, and they used the riparian doctrine to enhance this exercise of law.

Making the legal issues in Kansas murky was the semi application of the prior appropriation doctrine in the western portion of the state. As Hutchins and Irvine relate, two state statutes, one passed in 1886 and another in 1891, instituted this practice. Generally, as was the case in these statutes, prior appropriation doctrine considered water as public property and recognized the right of a person to use some portion of a stream flow in a legally recognized "beneficial" use. The state usually established a hierarchy of these uses, normally categorized as domestic, industrial, power production, irrigation, recreational, or more recently "instream flow." A state bureau, such as the Division of Water Resources in Kansas, or the state engineers' offices throughout much of the American West, dated the water right, and this date determined when a person received water in relation to other water users tapping the same source, or 'first in time, first in right.' While prior appropriation could function in western Kansas under the provisos of an 1886 statute, the Kansas Supreme Court decision in *Clark v Allaman*, as Irvine argues, limited its applicability to those situations where it did not interfere with the implementation or the practice of the riparian doctrine prior to 1886.<sup>25</sup>

Shaping much of the future development of irrigated agriculture around Garden City was the United States Supreme Court's decision of *Kansas v Colorado* (1907). Knapp certainly knew the importance of this highly noted interstate conflict over the flows of the Arkansas River, and he also studied closely Justice David Brewer's opinion for the court. Justice Brewer, as I have argued, had endeavored to protect the economic development of water in both Kansas and Colorado, but he did so in such a way to skirt the dictates of either the prior appropriation or riparian doctrines. At the time, this was the largest suit to come before the court and the first one of original jurisdiction between two contending states over the flows of an interstate river.

Justice Brewer's decision, so Mark Wagner, Robert Scott, and I have claimed, was a precedent setting, legal innovation. By virtue of the riparian doctrine, Kansas attorneys argued, up-stream water users in Colorado had no business de-

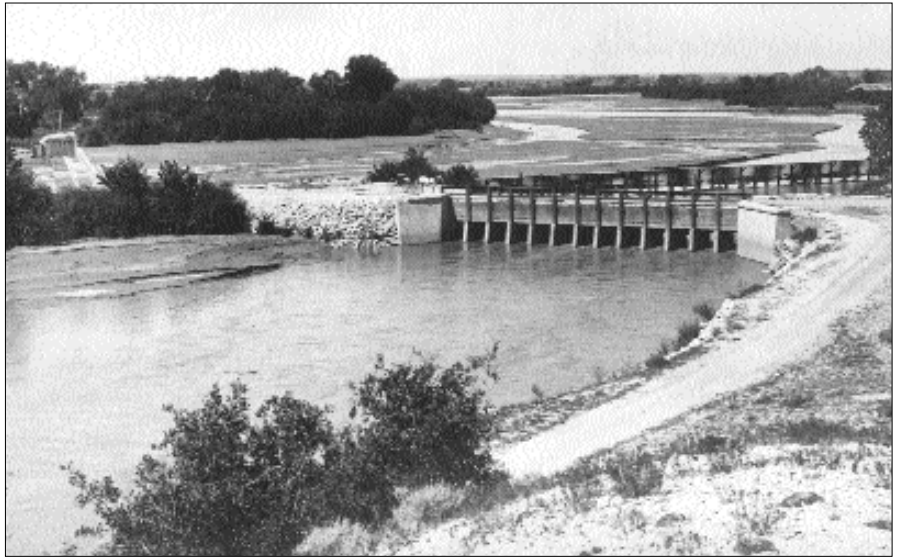
24. Irvine, "Putting The Water to Work"; Hutchins, *The Kansas Law of Water Rights*; Windscheffel, "Water Law in Kansas"; Windscheffel, "Kansas Water Rights—Another Chapter." Michael J. Brodhead, "Visions of a Better World: Comparisons of Kansas Jurists David J. Brewer and Frank Doster," *Kansas History: A Journal of the Central Plains* 16 (Spring 1993): 42–53, provides a concise biography of Brewer's distinguished career. After serving as Kansas Supreme Court justice, he was appointed to the federal appellate court of the Fifth District, and after that, he was appointed to the United States Supreme Court.

25. Irvine, "Putting the Water to Work," 93–100.

pleting stream flows into Kansas. Contenders in Colorado, on the other hand, believed that their prior appropriation doctrine had given them complete access to the Arkansas River flows regardless of the consequences to downstream uses in Kansas.<sup>26</sup> Obviously, Justice Brewer did not want to set the doctrine of one state over that of the other, and in the light of hundreds of exhibits, the intervening of the U.S. Department of Interior to protect its fledgling Reclamation Service, nearly ten thousand pages of testimony, and five years of a constant stream of briefs and rulings, he created the doctrine of “equity.”

Brewer’s decision is an excellent example of how well Kansans understood using water to make a living. The justice weighed the economic returns of water development in both states and in so doing, he found Kansas counties prospering along with those in Colorado. Logically, it made no sense to require Colorado irrigators to relinquish their water diversions to downstream users in Kansas even if it meant destroying the historical flows of the river itself. To do so would dry up all of the economic returns rendered through water development in Colorado. Besides, Kansas attorneys had to prove how water use in Colorado had hindered economic development in Kansas before the court would even consider forcing Coloradans to yield any river flows beyond the state line. Unfortunately for Kansas attorneys, increasing property values and crop returns throughout the valley tended to show a state enjoying economic progress regardless of the consumption of Arkansas River flows in Colorado. Economic development, not ecology, was the keystone of Justice Brewer’s decision, and even though Kansans were disappointed with their native son’s decision making in this particular instance, they applauded his sensibilities.<sup>27</sup>

As historians Donald Pisani and Donald Worster have long claimed, prior appropriation doctrine was an effective means to encourage the economic development of water sources, and George Knapp hoped someday prior appropriation could work its economic magic in Kansas.<sup>28</sup> In the meantime, Knapp investigated



*In Kansas v Colorado, Kansas contenders argued that upstream water users in Colorado had no business depleting stream flows into Kansas. Depicted here is a head gate on the Arkansas River at La Junta, Colorado, 1904.*

26. Mark J. Wagner, “The Parting of the Water—The Dispute between Colorado and Kansas over the Arkansas River,” *Washburn Law Journal* 24 (1984): 99–120; Robert D. Scott, “Kansas v. Colorado Revisited,” *American Journal of International Law* 52 (July 1958): 432–54; Sherow, “The Contest for the ‘Nile of America’: Kansas v. Colorado (1907),” *Great Plains Quarterly* 10 (Winter 1990): 48–61; Sherow, *Watering the Valley*.

27. *Ibid.*

28. Worster, *Rivers of Empire*; Donald J. Pisani, *Water, Land, and Law in the West: The Limits of Public Policy, 1850–1920* (Lawrence: University Press of Kansas, 1996); Pisani, *To Reclaim a Divided West*.



Justice David Brewer wrote the opinions of the Kansas Supreme Court's decision in the major water-related cases in 1877 and 1881. In 1907 Brewer, then a member of the U.S. Supreme Court, was faced with the critical decision in *Kansas v Colorado*.

the cost of pumping water for farm crops. Pump irrigation had been in the making around Garden City for about twenty years when Knapp arrived in the area. Anne Marvin's and T. Lindsay Baker's historical works are the best in depicting how farmers had employed windmill technology in the early developmental stages of pump technology.<sup>29</sup> Later, as the work of James Edward Tomayko shows, electric and gas powered centrifugal pumps, which were proving reliable and cost effective especially in terms of raising profitable crops of sugar beets for the Garden City Sugar Factory, rapidly became an important means of irrigating crops throughout the western region of the state.<sup>30</sup>

More than anything else, sugar beet production was the highest art form of making a living in the Garden City area. Moreover, the cultivation of this crop assured the development of ditch and pump irrigation in the western portion of the state. As Conner Sorensen's work shows, it also prompted one of the most ill-fated projects ever undertaken by the Federal Reclamation Service, later to become the Bureau of Reclamation. The director, Frederick Newell, guided the work of the service as it built a series of large, steam-powered water pumps that were intended to serve a farmer-owned irrigation company. Severe problems plagued the entire operation, the farmers lost faith in the ability of the service, and Newell grew disillusioned with the farmers' recalcitrance. By the early 1920s the sugar company bought all of the equipment at auction, and the one and only pump irrigation project ever undertaken by the federal government came to an ignominious end.<sup>31</sup>

Knapp had received a thorough education in water development as a result of his work around Garden City. He was acutely aware of the lingering animosity between irrigators in Kansas with those upstream in Colorado. He also knew that a hodgepodge of laws combining elements of riparian and prior appropriation doctrines governed Kansas water uses. Kansans in the eastern half of the state preferred the riparian doctrine, with its protection of stream flows and quality regardless how water was put to use, whereas irrigators in the western regions gravitated toward the prior appropriation doctrine, which allowed stream depletions so long as the water was put to some legally designated beneficial use, which always required an economic return on the water consumed. Knapp knew the principal players in this unending legal drama, and he frequently discussed this situation with the managers of the Garden City Company, and the farmers of the six irrigation companies around the city. The local and state at-

29. Marvin, "The Fertile Domain"; Marvin, "Irrigation and Boosterism in Southwest Kansas"; T. Lindsay Baker, "Blowin' in the Wind: Windmill Manufacturing and Distribution Kansas," *Kansas History: A Journal of the Central Plains* 19 (Spring 1996): 6–21; Baker, "Irrigating with Windmills on the Great Plains," *Great Plains Quarterly* 9 (Fall 1989): 216–30. For a discussion of irrigation in the Republican River valley, see Bradley H. Baltensperger, "Agricultural Adjustments to Great Plains Drought: The Republican Valley, 1870–1900," in *The Great Plains: Environment and Culture*, ed. Brian W. Blouet and Frederick C. Luebke (Lincoln: University of Nebraska Press, 1979).

30. James Edward Tomayko, "Irrigation and the Development of Southwest Kansas" (Ph.D. diss., Carnegie-Mellon University, 1980). For a thorough and comprehensive discussion of Oxnard Beet Sugar Factory's accomplishments throughout the West, including detailed depictions of events in the Arkansas River valley above Dodge City, Kansas, see Dan Gutleben, "The Sugar Tramp: The Last Chapter" (manuscript, Colorado Historical Society, Denver, 1959, 1961).

31. Conner Sorensen, "Federal Reclamation on the High Plains: The Garden City Project," *Great Plains Journal* 15 (Spring 1976): 114–33.

torneys familiar with the legal plight of the local irrigators often discussed the details and complexity of western water law with Knapp. In Garden City, Knapp had learned the intricacies of water practices not only in Kansas but in the West.

In 1916 Knapp received a promotion and became superintendent of the Garden City Experiment Station; in this capacity he furthered his work of compiling and analyzing records of tillage methods, crop rotations, and crop varieties under dryland and irrigated agriculture. By 1919 Knapp had achieved a well-earned reputation as an expert in Kansas water practices. In June, Governor Henry J. Allen offered Knapp the top position in the newly created office of the Commissioner of Irrigation. Part of Knapp's responsibilities was to gather information and statistics concerning water supplies throughout the state, to analyze how these resources could be more efficiently used in agriculture, and to prepare plans to implement pump irrigation wherever feasible.

Knapp began to address water issues on a broader, statewide basis but with always more time spent on affairs in the western portion of the state. The eastern half did have its own water problems, but the residents there, so Knapp understood, would have to see their own problems in a different light before he could consider dealing with their difficulties. Flooding was among the problems faced in the eastern portion of the state, whereas the difficulty in the west nearly always revolved around a dearth of water. While Knapp foresaw the potential for a uniform system of water law governing the entire state, he would have to wait patiently for his opportunity to arrive before he could devise a new code for Kansas.

Not only did he realize that something had to be done about the hodgepodge of water law in the state, he also knew that he must seek accords with the neighboring states over the flows of interstate streams. One of the commissioner's powers was representing Kansas in interstate compact negotiations, the results of which were approved by the respective state legislatures and governors, the Congress, and finally signed by the president. These accords served to bind the respective uses of water between Kansas and its negotiating neighbors, and throughout his career Knapp labored to achieve accords to regulate the flows of the Arkansas and Republican Rivers.

Very few historians have dealt with the history of negotiating water compacts in the West, much less in Kansas. Norris Hundley has written extensively about the history of the Colorado River Compact of 1922, and along with the work of Daniel Tyler, both have emphasized the importance of Delph Carpenter, an influential Colorado water attorney, in initiating this procedure for resolving interstate water conflicts. I have written how the compact idea took form during the first Colorado-Kansas suit, and how prior to 1922 Delph Carpenter and George Knapp met on several occasions and attempted to write an interstate agreement to settle the issues between irrigators around Garden City and those in eastern Colorado.

While little in the form of an agreement emerged from Knapp's and Carpenter's labors, the form and content of future interstate compacts began taking shape. In keeping with the art of making a living, these negotiations would treat river flows simply as a commodity, something from which money could be made. Secondly, river flows would be treated like bank accounts. Instead of dividing dollars, the negotiators apportioned cubic feet per seconds of stream flows. Reservoirs became little more than bank accounts into which deposits and withdrawals were made according to the provisions of the contract, the interstate compact.

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nomic development  
of the state.*

Knapp and Carpenter played crucial roles in fashioning the nature of interstate water negotiations, and Knapp later played important roles in the successful negotiations of the Republican River Compact in 1942 and the Arkansas River Compact of 1948.

Given the continuing legal, economic, and ecological importance of these negotiations, it is surprising how little attention historians, especially Kansas historians, have given to these accords. Presently law firms representing the various states in these affairs do recognize the importance of the histories of these negotiations, and these firms have hired consulting historians to research these compacts. Yet this is not the sort of work that is placed in public view. For example, no extensive historical treatment has been given to the Republican River Compact, yet the attorneys for the state of Colorado have hired a historian to do this very work as the states of Kansas and Nebraska are both preparing to duel over the flows in this river. The law firm of Simms and Stein in Santa Fe, New Mexico, which has represented the state of Kansas in its most recent contest with Colorado over the enactment of the Arkansas River Compact of 1948, hired a consulting historian from California to do its historical research. Academic historians should be more aware of the importance of these topics and hopefully published studies will follow. Not only does further work need to be done on the compacts on the Upper Arkansas and Republican Rivers in Kansas, but also on those with Oklahoma over the Arkansas River below Wichita in 1965, and with Nebraska over the interstate flows of the Big Blue River in 1971. These compacts have received even less academic attention than their two predecessors even though those agreements have had profound economic effects upon and shaped the riverine and groundwater ecologies of all the signatory states.<sup>32</sup>

By 1927 Knapp found himself immersed in ever greater responsibilities. The state legislature created the position of chief engineer of the Division of Water Resources, which fell under control of the State Board of Agriculture. As the first chief engineer, Knapp's duties extended to controlling all aspects pertaining to the administration and use of the water resources in the state. Shortly thereafter, the onset of the New Deal brought into sharp focus the need for a more uniform water code in the state. In part, the situation arose because the federal government promised money for building large flood control projects, but these dams would also significantly alter river flows, which the riparian doctrine prohibited.<sup>33</sup> Moreover, as Irvine alludes to in his work, the federal government

32. For some discussions of the Arkansas River projects below Wichita, Kansas, see Curtis Dean Toews, "The Regional Economic and Labor Market Impact of Large-scale, Rural, Public Works Construction: A Case Study of the McClellan-Kerr Arkansas River Navigation System" (Ph.D. diss.: University of Texas, Austin, 1981); William A. Settle Jr., *The Dawning: A New Day for the Southwest: A History of the Tulsa District, Corps of Engineers, 1939-1971* (Tulsa, Okla.: U.S. Army Corps of Engineers, Tulsa District, 1975); J. E. Wrathall, "The Arkansas River Basin Development," *Geography* 56 (November 1971): 333-5.

33. In addition to the undeniable social and economic disruption that would have come to the valley, this is probably one of the reasons that the Kiro Dam, a New Deal dam project proposed for the Kansas River just west of Topeka, failed to go far. See Philip E. Meyer, "Tuttle Creek Dam: A Case Study in Local Opposition" (master's thesis, University of North Carolina, 1962), 7-14. Dale E. Nimz, a Ph.D. candidate at the University of Kansas, is working on the issue of federal dam building in Kansas; see Nimz, "Kansans Want a Lake: The Kansas River Dam, an Unsuccessful Alternative to Fort Peck Dam, Montana" (paper presented at the Missouri Valley History Conference, Omaha, March 9, 2002).

promised money for soil conservation efforts, which included the construction of retaining ponds on creeks and small streams. These structures, too, could only work by disturbing the normal flows of creeks and rivers.<sup>34</sup> In short, Kansas water law, as Knapp then saw it, retarded economic growth and potential, the art of making a living.

The demographic and economic effects of World War II further bolstered Knapp's thinking about water law in the state. As Irvine's work illustrates, the war stimulated the rapid population growth of the large cities in Kansas, especially Wichita with its burgeoning aircraft factories. He depicts how the legislature granted Knapp's office the power to regulate ground water appropriations to expedite pumping the Equus Beds to supply the burgeoning water system of Wichita. But many farmers throughout Harvey County, north of Wichita, resented city crews on their property taking "their" water, and as a result Benard Peterson, the county attorney for Harvey County, took Knapp and the Division of Water Resources to court. Chief Justice William W. Harvey, Irvine notes, ruled against the Wichita position and declared unconstitutional the regulatory authority granted to Knapp. This decision prompted the chief engineer to craft a bill that would expressly allow his office to regulate and allocate the waters of the state.

The art of making a living certainly guided Knapp in devising this new code. As Homer Socolofsky and I have shown, he unequivocally judged the riparian doctrine, with its protection of stream flows and quality, as a hindrance to the economic development of the state.<sup>35</sup> Allowing water to flow freely out of the state on to the ocean, he reasoned, resulted in economic waste and loss. As Knapp phrased it, "unused water cannot widely be held in perpetuity for a common-law owner [riparian doctrine] who may never have use for it, without resulting in underdevelopment, permitting the water to flow out of the state and on toward the ocean, as an *economic waste* [italics added] and loss of a valuable natural resource."<sup>36</sup> In this line of reasoning, stream flows and underground water required human control and use in economic pursuits. Knapp ignored protecting the intrinsic importance of the Kansas waterscape, or at least this consideration went

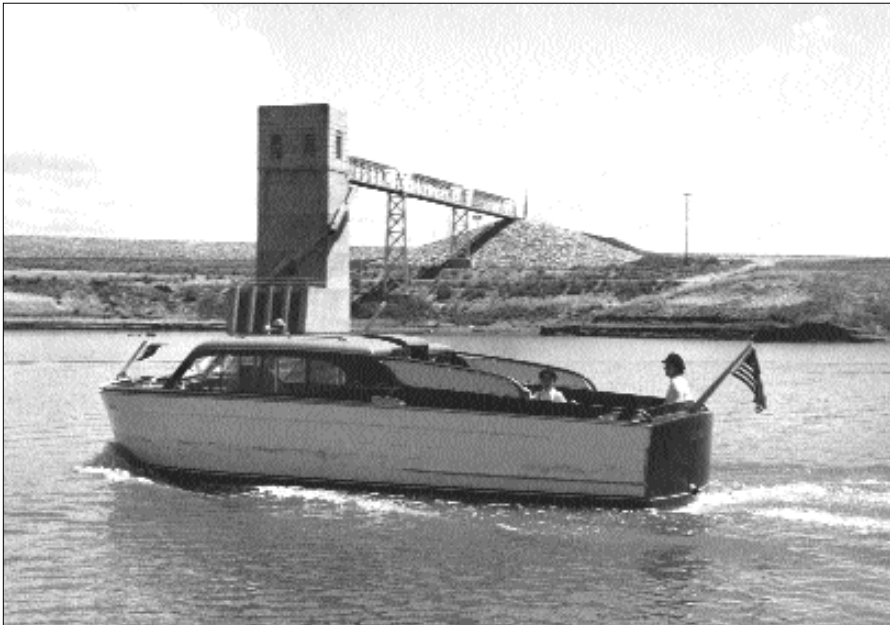


*Pump irrigation had been in the making in the southwest part of the state since the late 1800s. Farmers employed windmill technology and later electric- and gas-powered pumps to irrigate crops throughout the western region of Kansas. This display of windmills was photographed at the Finney County Fair in Garden City in 1895.*

34. Irvine, "Putting the Water to Work," 126.

35. James E. Sherow and Homer E. Socolofsky, "Kansas and Water: Survival in the Heartland," in *Politics in the Postwar American West*, ed. Richard Lowitt (Norman: University of Oklahoma Press, 1995): 106–19.

36. R. V. Smrha, "George Knapp and the Kansas Water Rights Act," 4.



*With the passage of the Water Act of 1945, the federal government embarked upon a dam-building program, beginning with Kanopolis dam and reservoir in Ellsworth County, shown here in the 1950s.*

unrecorded in any of his extant writings. Paramount in his mind was the beneficial use of water, shorthand throughout the West for employing water in some state-sanctioned economic pursuit.

Irvine's dissertation is the only thorough discussion of the passage and meaning of the Kansas Water Act of 1945. Irvine details how, with the blessing and support of Governor Andrew Schoeppel, Knapp undertook to write a water act to achieve his goals in 1945. The governor had appointed a committee of prominent Kansans to assist Knapp in this project. They wrote a fifty-three-page report summarizing the needs for a new water code that would "lead to maximum development and use" of water. This report set the foundation for the terms of the Kansas Water Act of 1945, which Governor Schoeppel signed into law in March 1946.<sup>37</sup>

The new law found excited support from businesses and urban planners in large cities. For example, an article in a 1946 issue of *Kansas Business Magazine* noted how "Kansas rivers would 'go to work'

when tamed by control programs" established by the new water act. This sentiment loudly echoed Bacon's and Hinderlider's call to enslave nature and water. "Our rivers in Kansas," the writer of this article claimed, "have led a pretty lazy carefree existence . . . [but] harnessed to full time jobs by multiple purpose dams and reservoirs these streams can do much to help us in expanding agriculture, business and industry in the state."<sup>38</sup> This view mirrored Knapp's thinking exactly as the act listed five acceptable beneficial uses, all economic in nature, for water in the state: domestic, agricultural, industrial, power production, and recreational.

By Knapp's own estimation, the passage of the Water Act of 1945 marked the crowning achievement of his career. As the legal historian James Willard Hurst once phrased it, the enactment of new resource laws was designed to achieve "release of energy," which in this case meant the release of energy for developing the economic potential of water.<sup>39</sup> With this law in hand, the federal government embarked upon its dam-building program, as Mark Shoup and Bruce Zamrzla's

37. Irvine, "Putting the Water to Work," 153–83.

38. "Kansas Rivers to 'Go to Work' When Tamed by Control Program," *Kansas Business Magazine* (January 1946): 48.

39. James Willard Hurst, "Legal Elements in United States History," in *Perspectives in American History*, vol. 5, *Law in American History* (Cambridge: Harvard University Press, 1971), 3–92; Hurst, *Law and the Conditions of Freedom in the Nineteenth-Century United States* (Madison: University of Wisconsin Press, 1956).

works show, beginning with Kanopolis dam and reservoir.<sup>40</sup> The Soil Conservation Service began subsidizing farmers who built storage ponds on their lands. City planners like those in Wichita began pursuing an aggressive program of building pumps and conveyance systems to supply their rapidly growing populations.

The most important development of groundwater as a result of the 1945 act came with farmers in the western portion of the state. They speedily set to work pumping the Ogallala Aquifer, and this subject has been treated by a number of scholars showing the immense economic returns from the building of center pivot irrigation systems throughout the state. Morton Bittinger provides a sound critical narrative of pumping while John Opie's award-winning history has offered an indictment of groundwater irrigation throughout the region.<sup>41</sup> Opie contends that irrigators are involved in a reckless use of a virtually nonrenewal resource, and severe economic and ecological consequences will come to the region once the water is depleted. Several geographers have applied a social science methodology to the area and given keen analyses of historical crop, population, and water use changes throughout the High Plains. Leaders among these scholars are David Kromm, Stephen White, and Thomas Schafer. Their work has underscored the importance of irrigated feed crops to the development of large-scale cattle and pig production around cities such as Garden City, Dodge City, Scott City, and Great Bend. Clearly, Knapp's efforts established the legal framework within which this economic growth could flourish. Certainly Knapp had mastered the art of making a living, but had he and supporters mastered the art of living?

Regardless of Knapp's optimistic prognostications, other people throughout the state reacted against the wholesale rush to develop water sources. As Homer Socolofsky and I depict, farm families throughout Harvey and Sedgwick Counties fought with guns and lawyers to protect the Equus Beds from overuse. The Wichita Water Department, armed with its water rights and wells, placed huge demands on this large groundwater source to the northwest of the city in an effort to meet rising urban demands. Falling water levels in farm wells drew a heated response from the hinterland, but farmers were unable to stop what many saw

*The most important development of groundwater as a result of the 1945 Water Act came with farmers in the western portion of the state, who speedily set to work pumping the Ogallala Aquifer.*

40. Academic historians have left largely untouched the story of federal dam building in Kansas. However, outdoor writers and wildlife enthusiasts have taken up the story and sound sketches have appeared in publications such as *Wildlife and Parks*. See J. Mark Shoup, "Kanopolis State Park: Diamond in the Rough," *Wildlife and Parks* 45 (September/October 1988): 29–33; Bruce Zamrzla, "Kanopolis Reservoir," *Kansas Wildlife* 42 (March/April 1985): 5–7. Another brief treatment of dam building in the state is Fred L. Parrish, "Kansas Agriculture 1901 to 1930," in *Kansas: The First Century*, vol. 2, ed. John D. Bright (New York: Lewis Historical Publishing Co., 1956), 126–7; Parrish, "Kansas Agriculture After 1930," *ibid.*, 142–44.

41. Morton Bittinger, *You Never Miss the Water Till . . . : The Ogallala Story* (Fort Collins, Colo.: Resource Consultants, 1980); John Opie, *Ogallala: Water for a Dry Land. A Historical Study in the Possibilities for American Sustainable Agriculture* (Lincoln: University of Nebraska Press, 1993). Updated thoughts on the history of the Ogallala are in Opie, "John Wesley Powell Was Right: Resizing the Ogallala High Plains," in *Fluid Arguments: Five Centuries of Western Water Conflicts*, ed. Char Miller (Tucson: University of Arizona Press, 2000). For the cultural and economic geographical approach, see David E. Kromm and Stephen E. White, eds., *Groundwater Exploitation in the High Plains* (Lawrence: University Press of Kansas, 1992); Stephen E. White, "Ogallala Oases: Water Use, Population Redistribution, and Policy Implications in the High Plains of Western Kansas, 1980–1990," *Annals of the Association of American Geographers* 84 (March 1994): 29–45; Thomas Schafer, "Specialization and Diversification in the Agricultural Systems of Southwestern Kansas, 1887–1980," in *Fluid Arguments*, ed. Char Miller. A political science approach that analyzes the relationship of state regulatory agencies and elected officials is Lawrence F. Keller, "The Political Economy of Public Management: An Interorganizational Network Perspective," *Administration and Society* 15 (February 1984): 455–74.



*A heated controversy  
over the develop-  
ment of water  
spawned by the  
enactment of the  
Water Act of 1945  
occurred after the  
building of Tuttle  
Creek Dam and  
Reservoir near  
Manhattan.*

as an irresponsible grab of “their” water even though water, itself, had become a “public” resource, one subject to legislated beneficial uses.<sup>42</sup>

A much more heated controversy over the development of water spawned by the enactment of the Kansas Water Act of 1945 occurred with the building of Tuttle Creek Dam and Reservoir. Joseph L. Arnold explains how the Mississippi River flood of 1927 stimulated the Army Corps of Engineers into planning ways to regulate flows into the Mighty Miss. Part of the blueprint was to erect scores of flood control dams throughout the Missouri River valley, and regulating the Kaw River and its tributaries was an important part of the design. Most of all the interest in this flood control came from the representatives of the industrial concerns center in the floodplain of Kansas City, Kansas. As Philip E. Meyer and Michael A. French argue in their writing, stockyards, railroad yards, industrial concerns, such as the Fairfield Industrial District where B-25 bombers were built during World War II, formed some of the most vocal and ardent support for flood control development upstream.<sup>43</sup> At the end of World War II, the Tuttle Creek Dam and Reservoir project, located on the Big Blue River a few miles north of where it emptied into the Kansas River at Manhattan, became part of the Pick–Sloan Plan, a combined effort on the part of the Army Corps of Engineers and the Bureau of Reclamation to merge flood control with multipurpose dams throughout the Missouri River valley. This plan has received little favorable treatment on the part of historians such as Marc Reisner, Elmer T. Peterson, and Arthur E. Morgan because of what happened to the people who lived in such places as the Blue River valley.<sup>44</sup>

Residents throughout the Blue River valley created a storm of protest against building the dam on the Blue River. Katherine E. Miller and Philip E. Meyer both show how effective public resistance was until 1951.<sup>45</sup> During the spring of that year, rains continually fell throughout the state and thoroughly saturated the ground, which caused rivers to overflow their banks and flood low-lying areas. In July intense cloudbursts caused already swollen rivers to break all bounds between their wide, high bluffs, and the rush swept everything before it. These flows transformed city streets into rapid flowing channels, destroyed farms, and killed livestock. In its wake were left to dry sodden cities, while fields, highways, and railroads had to be cleared of incalculable tons of debris and silt. The works of Ken Davis, Helen Keithley Lamb, Homer Socolofsky, and Virgil Dean provide an undisputable record of the carnage and destruction.<sup>46</sup> In the wake of this dis-

42. Sherow and Socolofsky, “Kansas and Water,” 114–5; Homer Socolofsky, “The Great Flood of 1951 and the Tuttle Creek Controversy,” in *Kansas: The First Century*, vol. 2, 494–502.

43. Meyer, “Tuttle Creek Dam”; Michael A. French, “Everything Under Control? Early Suburban Industrial Development and the Missouri River” (paper presented at the Thirty-fifth Annual Western History Association Conference, Denver, October 1995).

44. The Pick–Sloan Plan derived its name from Colonel Lewis Pick of the Army Corps of Engineers and Glenn Sloan in the Bureau of Reclamation, both of whom had drawn up plans for flood control and hydroelectric projects in the Missouri Basin. The enthusiastic approach to dam building employed by both the corps and the bureau is detailed in Marc Reisner, *Cadillac Desert: The American West and Its Disappearing Water* (New York: Penguin Books, 1986). General criticism of this dam-building spree are Arthur E. Morgan, *Dams and Other Disasters: A Century of the Army Corps of Engineers in Civil Works* (Boston: Porter Sargent Publisher, 1971); Elmer T. Peterson, *Big Dam Foolishness: The Problem of Modern Flood Control and Water Storage* (New York: Devin–Adair Co., 1954).

45. Katherine E. Miller, “Remembering the Controversial Tuttle Creek Dam,” *Kansas Quarterly* 20 (Fall 1988): 81–88; Meyer, “Tuttle Creek Dam.”

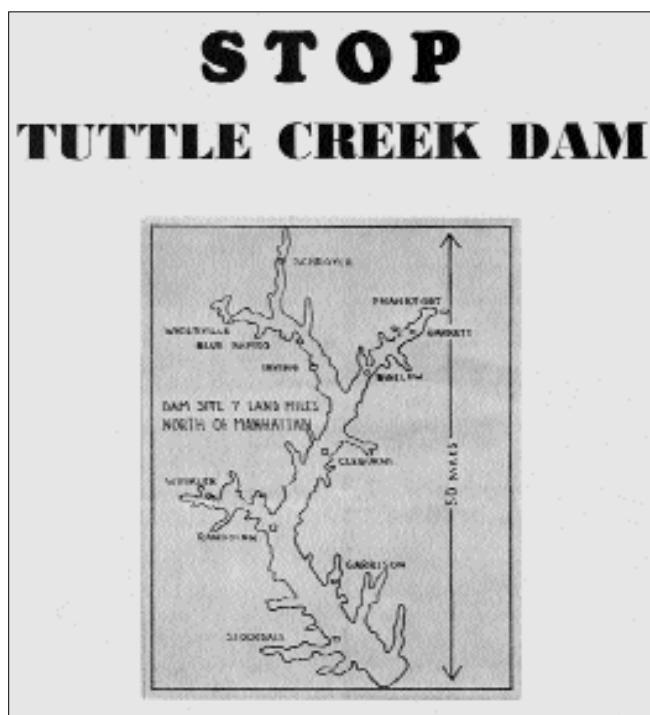
46. Kenneth S. Davis, *River on the Rampage* (Garden City, N.Y.: Doubleday, 1953); Helen Keithley Lamb, “The Flood of 1951,” *Kansas Quarterly* 8 (Spring 1976): 65–70; Virgil W. Dean, ed., “The Great Flood of 1951: A Letter from Catherine Wright Menninger,” *Kansas History: A Journal of the Central Plains* 21 (Spring 1998): 46–58.

aster, the forces advocating flood control dams became an unsailable force sweeping aside all opposition like the Blue Valley Bells, those farm women in the valley who stood firmly opposed to the building of Tuttle Creek Dam even after surviving the flood of 1951. Clearly, the economics of flood control reigned more important than preserving the agro-ecology and social arrangements in the Blue River valley, and it left a legacy, according to Gary Baldrige, of deep public distrust for the intentions of the federal government.<sup>47</sup>

When scholars discuss floods such as the one in 1951, or the more recent one of 1993, they often use terms such as “natural disaster” or “acts of God” in describing these events. In this respect Ted Steinberg’s work raises an interesting question as to whether the history of such occurrences are more a human creation than not. Were people courting disaster and economic ruin when they built in floodplains? Steinberg suggests that the human hardships of floods are not “natural” disasters but ones created by humans themselves. Steinberg’s methodology, if applied to Kansas floods, would surely provide some new insights about human suffering when the valleys across the state filled with water in 1951 and 1993.<sup>48</sup>

**D**espite the fight over Tuttle Creek Dam, the art of making a living prevailed in the state to such an extent that the Bureau of Reclamation and the Army Corps of Engineers built many other flood control and city reservoirs without a murmur of dissent. Cheney Dam and Reservoir, a bureau project built to supply the growing water needs of Wichita, and Fall River Dam and Reservoir, built by the Corps as a flood control project, both received popular support. However, one other notable public protest against a bureau project came from farmers who saw little, if any, economic benefit derived from their participation in the Cedar Bluff Irrigation District in Ellis and Trego Counties. As Chris Vancil astutely shows, farmers and townspeople had sharply differing views about irrigation, and the bureau struggled for ten years before overcoming the local opposition to its plans for the basin. Even after constructed, the district never delivered water to the farmers as originally intended. The “domination of nature” in terms of economic pursuits never seemed to materialize as fully as its most fervent advocates predicted.<sup>49</sup>

By the time of George Knapp’s death in 1966, the environmental movement had gained considerable momentum. Many activists were alarmed by disappearing habitats for aquatic wildlife. Bill Layher, for example, criticized the Division of Water Resources, in which the chief engineer worked, of having the “philosophy” that “water not being used was wasted,” a proposition certainly embraced by



*Residents throughout the Blue River valley created a storm of protest against building Tuttle Creek Dam. Public resistance was effective until it was swept away in the floods in 1951. Above is the cover of a brochure issued in the 1950s by the Blue Valley Study Association of Randolph, Kansas.*

47. Gary Baldrige, “Pottawatomie County Says No to Prairie Preservation,” *Kansas History: A Journal of the Central Plains* 16 (Summer 1993): 94–107.

48. Ted Steinberg, *Acts of God: The Unnatural History of Natural Disaster in America* (New York: Oxford University Press, 2000).

49. Chris D. Vancil, “Battling the Bureau: The Struggle for Irrigation in Ellis County, Kansas, 1920–1962” (master’s thesis, Fort Hays State University, Kansas, 2001).



*Another notable protest against a Bureau of Reclamation project came from farmers who saw little, if any, economic benefit from the Cedar Bluff Irrigation District in Ellis and Trego Counties. Photographed here is the Smoky Hill Basin of Cedar Bluff Reservoir, where evidence existed of the old Smoky Hill Trail before it was obliterated by water.*

Knapp and like thinkers as an indisputable truth. In counter position, water had its own purpose aside from promoting human economic development, so Layher and other environmentalists believed. Mostly, Kansas law failed to recognize the other than economic character of water, but the law did find value in water in terms of its "recreational" economic potential. In this prescribed beneficial use lay a conflict over the water supplying Cheyenne Bottoms, one of the most important wetlands on the North American continent.<sup>50</sup>

Doug Harvey, and to some extent John Zimmerman, have addressed the historical struggle to preserve Cheyenne Bottoms as an important wetland in the Central Flyway.<sup>51</sup> Both stress how nearly all of these early preservation efforts were rooted in the economic potential of the site, potential that included boating, hunting, and fishing. Scientific study of the area, for example by ornithologists such as Zimmerman, or simply observing waterfowl in their habitat, never played much a role in the mind of George Knapp when he thought about beneficial use in terms of recreation. Much less did the waterfowl and aquatic animals, along with the ecosystem

supporting that life, have value and importance unto themselves apart from the values humans placed on them. While admittedly Knapp played an important role in devising the water plan for Cheyenne Bottoms, he did so largely because he saw economic value in its preservation.

Homer Socolofsky and I have written about the struggle to save the wetland in the early 1990s. Irrigators along and near Walnut Creek had been acquiring and developing a great number of water rights after 1960. The technology was such that those pumps and center pivot irrigation systems drew increasingly larger amounts of water by the year, and the flows of Walnut Creek began to fail. These flows provided one of the more important sources of water to Cheyenne Bottoms, and environmentalists and sportspeople raised a chorus asking the chief engineer David Pope to curtail irrigation pumping along Walnut Creek so that water levels in the Bottoms could recover.


Pope responded by shutting down irrigators along Walnut Creek. But it is important to understand, as Leslie A. Duram correctly points out, that his decision was based solely upon the enforcement of the Water Act of 1945. The water rights to Cheyenne Bottoms, which pre-dated the irrigation rights by more than twenty

50. Bill Layher, "The State Water Plan: Is There Room for Wildlife?" *Kansas Wildlife* 43 (January/February 1986): 28–30.

51. Douglas S. Harvey, "Creating a 'Sea of Galilee': The Rescue of Cheyenne Bottoms Wildlife Area, 1927–1930," *Kansas History: A Journal of the Central Plains* 24 (Spring 2001): 2–17; Harvey, "Drought Relief Efforts Delayed by Rain: The History of Cheyenne Bottoms Wildlife Area" (master's thesis, Wichita State University, 2000); John Zimmerman, *Cheyenne Bottoms: Wetland in Jeopardy* (Lawrence: University Press of Kansas, 1990). More than history, Zimmerman's work is largely an ecological study of the Bottoms. A few other articles in popular journals give some history of Cheyenne Bottoms. See, for example, Mike Miller, "The Way It Was," *Wildlife and Parks* 45 (July/August 1988): 32–35.

years, had seniority. Consequently, the pump irrigation could operate only when, and if, it did not interfere with the fulfillment of the recreational rights assigned to Cheyenne Bottoms. In this case, the environmentalists were able to protect the ecology of the Bottoms because of the economic origins of recreational rights. Paradoxically, protecting the ecosystem of this wetland, as opposed to the economics of it, was certainly not a part of Knapp's thinking when he devised the Water Rights Act, yet that is what some irrigators mistakenly believed. However, Pope had not caved in to the demands of radical environmentalists, nor had the Division of Water Resources become some sort of environmental protection agency.<sup>52</sup>

There are many unexplored topics in Kansas water history that could shed further light on Clugston's assertion about the art of making a living as opposed to the art of living. What is the history behind the evanescence of more than seven hundred miles of flowing streams throughout the western half of the state? What is the history of an endangered species list that is more than 70 percent aquatic species? What is the historical relationship between environmental groups and the state in the enforcement of the federal Clear Water Act of 1972? What are the historical trends making water rights in Kansas marketable commodities in and of themselves, and how does this trend relate to the growth of cities during the post World War II years? What is the history of flood control in Kansas and how has this drive to tame rivers affected the interrelationships of culture, economics, and ecology? Why are Kansas streams some of the most polluted in the nation?<sup>53</sup>

The history of water use in Kansas shows that George Knapp was exceptionally clever and resourceful in devising the legal, bureaucratic, and technological means by which Kansans enhanced the art of making a living. Irrigated crops flourish and provide fodder for a flourishing livestock industry and food for a hungry world. Cities are provided with clean water and flood control through dams and levies. Through the soil conservation service, farmers have created a vast system of ponds controlling runoff throughout every county in the state. Truly, the history of water shows a high degree of accomplishment in the art of making a living. Despite this, other histories clearly support Clugston's belief that Kansans have yet to master the art of living as litigation, groundwater depletion, degraded wetlands, and failed enterprises fill the pages of many works. Without question, many channels in the water history of Kansas remain unexplored, and we hope that scholars will chart their courses. In these histories of the tangled relationships of humanity with life-giving water Kansans will gain an understanding of how well they have balanced making a living with the art of living. 

*Truly, the history of water shows a high degree of accomplishment in the art of making a living. But other histories support the belief that Kansans have yet to master the art of living.*

52. Leslie Aileen Duram, "Water Regulation Decisions in Central Kansas Affecting Cheyenne Bottoms Wetland and Neighboring Farmers," *Great Plains Research* 5 (1995): 5-19; Sherow and Solofsky, "Survival in the Heartland," 116-8.

53. Even though historians have not addressed these issues, newspapers, magazine articles, and government records and reports are replete with stories on these topics. Some of the best contemporary newspaper reporting on environmental issues in the state is by Jean Hays, a reporter with the *Wichita Eagle and Beacon*. For a while in the 1980s, some hard hitting environmental articles appeared in *Kansas Wildlife*. Good examples of this are Bill Layher, "The Four Deadly Sins," *Kansas Wildlife* 43 (November/December 1986): 33-5; Jim Bean, "They're Poisoning Our Fish," *ibid.* 41 (January/February 1984): 28-30. Environmentalists have been quite active in addressing contemporary water issues in the state as the newsletters of the Kansas Chapter of the Sierra Club and the Audubon Society will attest.